

CHARACTER PROVISION SERVICE SYSTEM,  
INFORMATION PROCESSING APPARATUS,  
CONTROLLING METHOD THEREFOR, AND RECORDING MEDIUM

5 BACKGROUND OF THE INVENTION

Field of the Invention

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The present invention relates to a character provision service system for providing users with characters such as interface agents and virtual  
10 characters in virtual spaces on computers or in TV games. The present invention also relates to an information processing apparatus used in the character provision service system, to a method of controlling the apparatus, and to a recording medium.

15 Related Background Art

In a piece of software for an interactive process using an interface agent, a virtual character or the like (collectively referred to as "character", hereinafter) capable of having a conversation with a  
20 user, the character is designed to make predetermined motions or expressions in a 3D graphic or the like. A character data provider provides a user with characters having such motions and expressions through pieces of software comprising data on a plurality of images  
25 created by a graphic designer or the like or data on a plurality of images obtained by photographing a particular person, and through an apparatus or a system

in which each piece of software is executed. Through the above-described software and the apparatus or system in which the software is executed, a user purchases a product in which a set of a plurality of characters is packed and selects some of the plurality of characters in the purchased product according to his or her need.

The above-described kind of software and the apparatus or system in which the software is executed entail problems described below.

(1) Even though users need various characters unique in face, figure and motion, they can only select those packed in provided products. Also, a selected character only performs motions and expressions specified in advance by a character designer.

(2) When a user needs only a new motion or expression with respect to a character, he or she must additionally purchase the entire of a product including the motion or expression of the character, which is inefficient in terms of cost and expense in time and effort for purchase.

(3) The cost at which a provider providing the above-described software or programs develops a plurality of characters in response to the needs of individual users and provides data on the developed characters is considerably high. Therefore, only a limited number of character data providers can provide

characters matching the needs of users.

(4) A character data provider cannot receive a compensation for a motion actually performed by a character on the basis of data on created images or photographed images prepared by the provider. Also, character data providers cannot check unauthorized use of their characters and cannot provide data on the characters without anxiety about unauthorized use of the data.

#### SUMMARY OF THE INVENTION

In view of the above-described problems, an object of the present invention is to provide a character service system and an information processing apparatus for enabling a user to easily and positively select and purchase a character which makes a motion that the user needs and to pay a charge as an equivalent for the motion, a method of controlling the apparatus, and a recording medium.

The other objects and features of the present invention will become apparent upon reading the following description of embodiments of the invention in conjunction with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing the configuration of a character provision service system;

Fig. 2 is a block diagram showing the configuration of a server computer;

Fig. 3 is a block diagram showing the configuration of a character generating computer;

5 Fig. 4 is a block diagram showing the configuration of a user computer;

Fig. 5 is a flowchart showing the operation of the character generating computer;

10 Fig. 6 is a diagram showing data communication and operation between the server computer and the user computer;

Fig. 7 is a diagram showing royalty data for a character display/control program;

15 Fig. 8 is a diagram showing royalty data with respect to character data;

Fig. 9 is a diagram showing royalty data with respect to character data;

Fig. 10 is a diagram showing an example of catalog information;

20 Fig. 11 is a diagram showing an example of catalog information;

Fig. 12 is a diagram showing an example of catalog information;

25 Fig. 13 is a diagram showing an example of a license management table for management of licenses;

Fig. 14 is a diagram showing a case where points are set as character royalty data;

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Fig. 15 is a flowchart showing the operation of the user computer;

Fig. 16 is a block diagram showing the configuration of a server computer;

5 Fig. 17 is a block diagram showing the configuration of a user computer;

Fig. 18 is a diagram showing data communication and operation between the server computer and the user computer;

10 Fig. 19 is a diagram showing royalty data with respect to a character display/control program;

Fig. 20 is a diagram showing royalty data with respect to character data;

15 Fig. 21 is a diagram showing an example of a case where news distributed through a network is announced by using an interface agent; and

Fig. 22 is a diagram showing an example of the computer functions of the server computer and the user computer.

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## DESCRIPTION OF THE PREFERRED EMBODIMENTS

### <First Embodiment>

A character provision service system in a first embodiment of the present invention has features  
25 described below.

The configuration and operation of the character provision service system in the first embodiment will

be described in detail with reference to the drawings.  
(Entire Configuration of Character Provision System)

Fig. 1 shows the entire configuration of the  
character provision service system of this embodiment.

5 The character provision service system includes a  
server computer 101, a user computer 102, a character  
data generating computer 103, and a network 104.

The server computer 101 distributes a character  
display/control program and character data necessary  
10 for generating characters. The server computer 101  
issues and manages licenses for use of character  
display/control programs and character data and  
performs charge management.

The user computer 102 receives a program for  
15 displaying and controlling a character (hereinafter  
referred to as "character display/control program") and  
character data from the server computer 101 under an  
operating instruction from a user. The user computer  
102 starts the received character display/control  
20 program, generates a character from the character data,  
and displays and controls the generated character. The  
user computer 102 is connected to the server computer  
101 via the network 104 so as to be able to communicate  
with the server computer 101.

25 The character data generating computer 103  
generates, under an operating instruction from a  
character data provider, character data from image data

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or data on a plurality of images obtained by photographing a particular person. The character data generating computer 103 is capable of data communication with the server computer 101.

5           The network 104 is, for example, the Internet over which data communication between the server computer 101 and the user computer 102 is performed.

10           While for ease of explanation Fig. 1 illustrates a case in which only one computer is provided as each of the server computer 101, the user computer 102 and the character data generating computer 103, a plurality of computers may exist as each kind of computer.  
(Internal Configuration of Server Computer 101)

15           Fig. 2 is a block diagram showing server functions performed by the server computer 101.

20           The server computer 101 includes a communication unit 201, a catalog transmission unit 202, a program transmission unit 203, a character display/control program storage unit 204, a character data transmission unit 205, a character data storage unit 206, a license issue unit 207, a royalty data storage unit 208, a charge management unit 209, a charge reception record storage unit 210, and an account unit 211.

25           The communication unit 201 performs data communication with the user computer 102 over the network 104.

          The catalog transmission unit 202 transmits to the

user computer 102 catalog information for presenting character display/control programs and character data which can be provided by the server computer 101.

The program transmission unit 203 transmits a  
5 character display/control program to the user computer 102.

The character display/control program storage unit 204 stores character display/control programs. The  
10 program transmission unit 203 transmits some of the stored character display/control programs to the user computer 102.

The character data transmission unit 205 transmits character data to the user computer 102.

The character data storage unit 206 stores  
15 character data. The character data transmission unit 205 transmits some of the stored character data to the user computer 102.

The license issue unit 207 issues to the user  
20 computer 102 licenses to use character display control programs and character data as described below.

The royalty data storage unit 208 stores charge  
information about character display/control programs and character data with respect to motions of  
characters.

25 The charge management unit 209 manages charges to be paid by the user to program providers and character data providers with respect to licenses issued from the



license issue unit 207 to the user computer 102.

The charge reception record storage unit 210 stores information about reception of charges managed by the charge management unit 209.

5       The account unit 211 settles an account of charges to be paid by the user to program providers and character data providers.  
(Internal Configuration of Character Data Generating Computer 103)

10       Fig. 3 is a block diagram showing server functions performed by the character data generating computer 103.

15       The character data generating computer 103 includes, as shown in Fig. 3, an image reading process unit 301, an image process unit 302, and a character data generating unit 303.

20       The image reading process unit 301 is supplied with data on illustration images and computer graphics images created by character data providers and data on model photograph images obtained by photographing persons (e.g., character provider themselves). The image reading process unit 301 converts the supplied image data into data on three-dimensional (3D) models of characters.

25       The image process unit 302 performs image transform processing on the character three-dimensional (3D) model data obtained by the image reading process

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unit 301 such that the drawing style (deformed style, realistic comic style, or the like), size, colors (including texture and the like), etc., of each character are changed.

5           The character data generating unit 303 performs processing for making each character move on the basis of the character 3D model data processed by the image process unit 302, thereby generating character data. (Internal Configuration of User Computer 102)

10           Fig. 4 is a block diagram showing functions performed by the user computer 102.

            The user computer 102 includes, as shown in Fig. 4, a communication unit 401, a user's request transmission unit 402, a data reception unit 403, a  
15   character display/control program storage unit 404, a character data storage unit 405, a character generating unit 406, a browsing unit 407, and a license storage unit 408.

            The communication unit 401 performs data  
20   communication with the server computer 101 over the network 104.

            The user's request transmission unit 402 transmits a user's request to the server computer 101.

            The data reception unit 403 receives data  
25   transmitted to the user computer 102 in response to the user's request transmitted by the user's request transmission unit 402.

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The character display/control program storage unit 404 stores a character display/control program.

The character data storage unit 405 stores character data.

5       The character generating unit 406 generates a character by using the character display/control program stored in the program storage unit 404 and the character data stored in the character data storage unit 405.

10       The browsing unit 407 comprises a WWW browser or the like. The browsing unit 407 displays information transmitted from the server computer 102 and also displays the generated character.

(Operation of Character Data Generating Computer 103)

15       Fig. 5 shows the operation of the character data generating computer 103.

20       In step S501, the image reading process unit 301 reads a plurality of groups of data on illustration images and computer graphics images created by character data providers and data on model photograph images obtained by photographing persons (e.g., character providers themselves).

25       In step S502, the image reading process unit 301 normalizes the plurality of image data groups read in step S501.

      In step S503, the image reading process unit 301 converts the plurality of image data groups normalized

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in step S502 into data on 3D models of characters.

In step S504, the image process unit 302 performs image transform processing on the character 3D model data obtained by the image reading process unit 301 to  
5 change the drawing style (deformed style, realistic comic style, or the like), size, colors (including texture and the like), etc., of each character.

In step S505, the character data generating unit 303 performs processing for making each character move  
10 on the basis of the character 3D model data processed in step S504. For example, processing for linking names of motions and data on image frames used to make the motions to the character 3D model data is performed.

15 In step S506, the character data generating unit 303 forms character data by compressing the character 3D model data processed by the image process unit 302.

The character data obtained by executing steps S501 to S506 in the character data generating computer  
20 103 as described above is transmitted to the server computer 101 to be stored in the character data storage unit 206 of the server computer 101.

To provide a plurality of different drawing styles in character data with respect to one character, the  
25 processing from step S504 may be repeatedly executed. (Data Communication between Server Computer 101 and User Computer 102)

Fig. 6 is a diagram for explaining data communication between the server computer 101 and the user computer 102 and main processing steps in the server computer 101 and the user computer 102 which characterize this embodiment, and which are executed to provide a character display/control program and character data for generating a character which moves so as to meet use conditions selected by the user.

In step S601, the user operates the user computer 102 to request the server computer 101 to transmit information on a catalog of character display/control programs and character data which can be provided to the user computer 102. For example, if the network 104 is the Internet, data in HyperText Markup Language (HTML) format may be used for requesting transmission of the catalog information.

In step S602, the server computer 101 receiving the catalog transmission request from the user computer 102 in step S601 transmits catalog information, including information on charges for character display/control programs and character data with respect to use conditions (e.g., character use time periods and amounts of motions) stored in the royalty data storage unit 208, to the user computer 102 through the catalog transmission unit 202. In step S602, the user computer 102 displays the catalog information received from the server computer 101 to enable the

user to select use conditions according to his or her need.

Fig. 7 shows an example of information on charges for use of a character display/control program

5 according to motions of a character, which information is stored in the royalty data storage unit 208.

Referring to Fig. 7, charges for use of a character display/control program are set with respect to time periods during which the character moves to make

10 character motions or amounts of motions made by the character. In Fig. 7, a "fee" is an amount to be actually paid by the user, and a "program royalty" is an amount taken from the amount paid by the user to be paid to the program provider. The remainder which is  
15 the result of subtraction of the "program royalty" from the "fee" is paid as a brokerage fee to the distribution service provider. The amount to be paid to the program provider may be designated as a rate instead of the absolute value. In such a case, a given  
20 percent (e.g., 10%) of the fee may be stored as "program royalty" in the royalty data storage unit 208.

A unit amount of motions is set as the number of moving image frames displayed which corresponds to a given number of times moving image data is changed.

25 Fig. 8 shows an example of information on character data charges according to motions of a character, which is stored in the royalty data storage

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unit 208. Referring to Fig. 8, charges for use of character data are set with respect to time periods during which the character moves to make character motions or amounts of motions made by the character.

5 In Fig. 8, a "fee" is an amount to be actually paid by the user, and a "character royalty" is an amount taken from the amount paid by the user to be paid to the character data provider. The remainder which is the result of subtraction of the "character royalty" from  
10 the "fee" is paid as a brokerage fee to the distribution service provider. The amount to be paid to the character provider may be designated as a rate instead of the absolute value. In such a case, a given percent (e.g., 10%) of the fee may be stored as  
15 "character royalty" in the royalty data storage unit 208.

In a case where the user selects different use periods or amounts of motions with respect to a character display/control program and character data,  
20 the generated character moves in the shorter use period or until the smaller amount of motions is reached. For example, in a case where the user selects 50,000 frames with respect to a character display/control program while selecting 10,000 frames with respect to character  
25 data, the character makes motions through 10,000 frames. In such a case, a message "The character will make motions through 10,000 frames. Is it OK ?" may be

transmitted to the user to urge the user to change the selected setting of the amount of motions in the character display/control program or the character data. Also, the excess amount of motions may be used in combination with character data or a character display/control program newly selected. That is, for example, in a case where 50,000 frames and 10,000 frames have been selected with respect to the character display/control program and character data, respectively, and the character has made motions through 10,000 frames, only character data for 40,000 frames may be newly selected next time and the character display/control program may move the character by using 40,000 frames corresponding to the remainder in the preceding use.

Fig. 9 shows an example of information on charges according to character motion modes stored in the royalty data storage unit 208. Referring to Fig. 9, charge and character royalty extra fee rates are set with respect to motion modes, respectively. The motion modes include "conversation modes" in which a character has an interactive conversation with the user. The conversation modes include, for example, a text mode in which a balloon is displayed together with the character and the character has a conversation with the user by means of letters, a voice mode in which the character has a conversation with the user by means of



voice reproduced simultaneously with display of the character, and a sign language mode in which the character is made to make signs in a sign language for conversation with the user. The user can select one of the conversation modes according to his or her preference. While the character does not move the mouth in the text mode, it moves the mouth in the voice mode. Also, the character moves the mouth and hands in the sign language mode. That is, the number of parts moved changes with respect to the modes. Therefore, different extra fee rates are separately set by being related to the conversation modes. It is also possible to select one of "personality modes" as a motion mode. The number of moving parts and the amount of motions of a character are changed, for example, between a personality mode in which the character has a tendency toward gesticulation and expression of emotions and another personality mode in which the character is gentle and smiling. Therefore, different extra fee rates are set separately by being related to the personality modes.

Figs. 10 and 11 show an example of catalog information transmitted from the server computer 101 to the user computer 102 and displayed by the browsing unit 407 in the user computer 102. To the catalog information, sampled images, for example, may be attached as character data to improve the facility with

which the user makes a selection from character data.  
If the network 104 is the Internet, the catalog  
information is transmitted in a format in accordance  
with the HTML or the like and the browsing unit 4 in  
5 the user computer 102 displays the catalog information  
shown in Fig. 10. The user selects, through a character  
use condition selection window shown in Fig. 11,  
desired use conditions (character conversation and  
personality modes, an amount of motions, etc.) on the  
10 basis of the displayed catalog information.

In step S603, the user requests, through the user  
computer 102, the server computer 101 to transmit a  
character display/control program and character data on  
the basis of the use conditions selected in step S602.

15 At this time, the user computer 102 also transmits  
information necessary for settlement to the server  
computer 101. The information necessary for settlement  
comprises the number of user's bank account or the  
number of user's credit card, the period for which the  
20 credit card is valid, etc. The information may be  
transmitted after being encrypted by using an available  
encryption technique for the purpose of improving the  
security.

The charge management unit 209 operating under the  
25 control of the server computer 101 computes charges for  
the character display/control program and character  
data on the basis of use conditions selected by the

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user and received from the user computer 102 in step S603, and stores the results of computation in the charge reception record storage unit 210. The account unit 211 performs electronic settlement on the basis of the information stored in the charge reception record storage unit 210 and the information necessary for settlement received from the user computer 102 in step S603. At this time, the server computer 101 receives a fee from the user through the user computer 102 on the basis of the charges with respect to the use conditions stored in the royalty data storage unit 208, and pays a predetermined amount of money in the received fee to the program provider or the character data provider as a royalty.

In step S604, after the completion of the above-described settlement processing, the server computer 101 extracts the character display/control program or character data being a request of the user from the character display/control program storage unit 204 or the character data storage unit 206, and transmits the extracted program or data to the user computer 102 through the program transmission unit 203 or the character data transmission unit 205. The user computer 102 stores, in the character display/control program storage unit 404 or the character data storage unit 405, the character display/control program or character data transmitted from the server computer 101

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in step S604.

In step S605, the server computer 101 issues from the license issue unit 207 a license according to the use conditions selected by the user, and transmits the issued license to the user computer 102. This license may be encrypted and attached to a piece of electric mail or the like to be transmitted to the user computer 102.

The transmitted license is registered and managed in a license table such as shown in Fig. 13, which is stored in the license storage unit 408. The character display/control program and character data transmitted from the server computer 101 to the user computer 102 in step S604 are in an encrypted state or access to them is restricted. A decryption key and a password or the like included in the license transmitted in step S605 are set to enable use of the program and data. The use conditions are related to the kind of license, and the character display/control program and the character data are used to make motions of the character according to the set license.

If the user of the user computer 102 needs a plurality of characters, other character data and a related license may be obtained by the above-described procedure.

(Operation of User Computer 102)

As described above, in the process shown in Fig.

6, the user computer 102 receives from the server computer 101 a character display/control program, character data and licenses to use the program and the data. The user computer 102 can generate a character and make motions of the character by using the character display/control program and the character data under the use conditions (a use period, an amount of motions, a motion mode, etc.) indicated in the received licenses.

Fig. 15 shows a procedure by which the character generating unit 406 of the user computer 102 generates a character which moves on the basis of use conditions indicated in licenses. The "licenses" used herein are issued from the server computer 101 to the user computer 102 with respect to a character display/control program and character data when the user of the user computer 102 purchases the character display/control program and character data from a program provider.

In step S1002, after the character display/control program has been started, the character generating unit 406 checks whether a decryption key and a password or the like included in the license transmitted from the server computer 101 to the user computer 102 are set in the character display/control program also transmitted from the server computer 101 to the user computer 102, because the character display/control program is in an

encrypted state or access to it is restricted, and because the decryption key and the password or the like are required to enable use of the character display/control program.

5           If it is determined in step S1001 that the  
character display/control program is not licensed, the  
character generating unit 406 checks in step S1002  
whether the license is stored in the license storage  
unit 408.

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10      If it is determined in step S1002 that the license
      is not stored, the character generating unit 406
      terminates the process for generating a character.

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15 If it is determined in step S1002 that the license  
is stored, the character generating unit 406 sets the  
license in the character display/control program in  
step S1003.

The process then returns to step S1001 and the execution of the subsequent steps is repeated.

20 If it is determined in step S1001 that the character display/control program is licensed, the character generating unit 406 checks in step S1004 whether the license is valid with respect to the use conditions. For example, if the license indicates that the time period for use of the character is one week, 25 the character generating unit 406 checks whether the present day is within one week from the character use start date.

If it is determined in step S1004 that the license is invalid with respect to the use conditions, the character generating unit 406 performs in step S1005 processing for canceling the character display/control program license stored in the license storage unit 408.

If it is determined in step S1004 that the license is valid with respect to the use conditions, the character generating unit 406 checks in step S1006 whether a decryption key and a password or the like included in the license transmitted from the server computer 101 to the user computer 102 are set in the character data also transmitted from the server computer 101 to the user computer 102, because the character data is in an encrypted state or access to it is restricted, and because the decryption key and the password or the like are required to enable use of the character data.

If it is determined in step S1006 that the character data is not licensed, the character generating unit 406 checks in step S1007 whether the license is stored in the license storage unit 408.

If it is determined in step S1007 that the license is not stored, the character generating unit 406 terminates the process for generating a character.

If it is determined in step S1007 that the license is stored, the character generating unit 406 sets the license in the character data in step S1008. The

process then returns to step S1006 and the execution of the subsequent steps is repeated.

5 If it is determined in step S1006 that the character display/control program has been licensed, the character generating unit 406 checks in step S1009 whether the license is valid with respect to the use conditions. For example, if the license indicates that the time period for use of the character is one week, the character generating unit 406 checks whether the  
10 present day is within one week from the character use start date.

If it is determined in step S1009 that the license is invalid with respect to the use conditions, the character generating unit 406 performs in step S1010 processing for canceling the character data license  
15 stored in the license storage unit 408.

If it is determined in step S1009 that the license is valid with respect to the use conditions, the character generating unit 406 starts in step S1011  
20 processing for generating a character by using the character display/control program and the character data and making the character move under the character use conditions.

In a case where one of the use conditions (the use  
25 period, the amount of motions, etc.) indicated in the licenses for the character display/control program and the character data is exceeded or it is determined that

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one of the licenses is invalid (step S1004, step S1009)  
and the license is canceled (step S1005, step S1010),  
the user computer 102 requests the server computer 101  
to transmit a license (step S601 shown in Fig. 6),  
5 receives the license for use of the necessary character  
display/control program or character data from the  
server computer 101 (step S605 shown in Fig. 6), and  
again performs the process from step S1001 to enable  
processing for generating the desired character by  
10 using the character display/control program and  
character data.

In this embodiment, as described above, a user who  
wishes to use a character (an interface agent, a  
virtual character or the like) in a virtual space on a  
15 computer or in a TV game or the like for an interactive  
conversation with the user, for example, can select a  
detailed setting of kinds and amounts of motions made  
by the character, a time period for use of the  
character, etc., to enable the character provision  
20 service system to provide the character according to  
the user's need. Therefore, use of the character  
provision service system by users can be promoted.

In this embodiment, charges for use of a program  
for displaying and controlling a character and  
25 character data are computed and settled according to  
the amount of motions of the character, the time period  
for use of the character, motion modes, etc. Thus, a

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user can use a character according to his or her need by being charged according to the necessary period, amount of motions and motion modes, so that use of the character provision service system by users can be promoted. Also, a program provider or a character data provider can collect fees according to the time periods during which a character obtained from image data or photograph image data provided by the provider, the amounts of motions made by the character, and motion modes, so that provision of programs or characters by program providers or character data providers can be promoted.

In this embodiment, intervention steps are provided between users and character data providers or program providers to enable smoother payment from the users to the character data providers or program providers. For management of the intervention steps, a brokerage fee is charged. Therefore business using the character provision service system can be promoted.

<Second Embodiment>

A second embodiment of the present invention will be described with respect to a character provision service system in which a user can use a character display/control program and character data on a server computer 101 by accessing the program and data through a user computer 102 when necessary instead of reading the character display/control program and character

data to the user computer 102 by performing the process described above according to the first embodiment. The character provision service system according to this embodiment will be described with respect to a case  
5 where the server computer 101 and the user computer 102 are connected to a network 104 at all times. However, the arrangement may alternatively be performed in which a user connects the user computer 102 to the server computer 101 when necessary.

10 The configuration of the server computer 101 in this embodiment is as shown in Fig. 16, for example.

As shown in Fig. 16, the server computer 101 in this embodiment has a program used amount measure unit 1601, a character data used amount measure unit 1602,  
15 and a used amount storage unit 1603, described below, in addition to the components of the server computer 101 in the first embodiment shown in Fig. 2. The program transmission unit 203, the character data transmission unit 205, and the license issue unit 207  
20 constituting the server computer 101 of the first embodiment shown in Fig. 2 are not necessary.

Referring to Fig. 17, the user computer 102 in this embodiment has a data access unit 1701 in addition to the components of the user computer 102 in the first  
25 embodiment shown in Fig. 4. The data access unit 1701 enables direct access from the user computer 102 to a character display/control program and character data on

the server computer 101. The character display/control program storage unit 404, the character data storage unit 405, and the data reception unit constituting the user computer 102 of the first embodiment shown in Fig. 4 are not necessary.

Fig. 18 is a diagram showing main processing steps in data communication between the server computer 101 and the user computer 102 in this embodiment.

In step S1301, the user operates the user computer 102 to request the server computer 101 to transmit information on a catalog of character display/control programs and character data which can be provided to the user computer 102 by a character distribution service. For example, if the network 104 is the Internet, data in HTML format may be used for requesting transmission of the catalog information.

In step S1302, the server computer 101 receiving the catalog transmission request from the user computer 102 in step S1301 transmits to the user computer 102 catalog information, including information on charges for character display/control programs and character data with respect to use conditions (e.g., use as limiting the time period during which motions are made, use as limiting the amount of motions) stored in the royalty data storage unit 208.

Fig. 19 shows an example of information (royalty data) on charges for use of a character display/control

program according to motions of a character, which information is stored in the royalty data storage unit 208. Also, Fig. 20 shows an example of information (royalty data) on charges for use of character data according to motions of a character, which information is stored in the royalty data storage unit 208. Since in this embodiment the server computer 101 can measure motions of a character, charges for use of the character display/control program and character data are set per minimum unit amount of a character in the information shown in Figs. 19 and 20. For example, 10 Yen per minute is set as a fee per unit motion period, and 1 Yen per 10 frames is set as a fee per unit motion amount.

In step S1302, the user computer 102 displays the catalog information (see Figs. 19 and 20) received from the server computer 101 to enable the user to select use conditions according to his or her need.

In step S1303, the user requests, through the user computer 102, the server computer 101 to transmit a character display/control program and character data on the basis of the use conditions selected in step S1302. At this time, the user computer 102 also transmits information necessary for settlement to the server computer 101. The information necessary for settlement comprises information about user's secret. Therefore the information may be transmitted after being

encrypted by using an available encryption technique to enable the information about user's secret to be transmitted with security.

After the completion of the above-described  
5 process, the user computer 102 obtains through the data access unit 1701 the character display/control program and the character data respectively stored in the character display/control program storage unit 204 and the character data storage unit 206 of the server  
10 computer 101, and makes the character generating unit 406 generate a character.

When the character is generated, each of the character display/control program used amount measure unit 1601 and the character data used amount measure  
15 unit 1602 of the server computer 101 measures motions of the character used in the user computer 102. Data on motions of characters used by a plurality of users and measured as described above is stored in the used amount storage unit 1603 with respect to each user.

20 The charge management unit 209 computes a fee to be paid by each user by using the motion information stored in the used amount storage unit 1603 and the charge information stored in the royalty data storage unit 208, and stores the computation results in the  
25 charge reception record storage unit 210. The account unit 211 performs electronic settlement on the basis of the information stored in the charge reception record

storage unit 210 and the information necessary for settlement received from the user computer 102 in step S1303. At this time, the server computer 101 pays a predetermined amount of money in the fee received from each user to the program provider or the character data provider as a royalty.

In this embodiment, as described above, when the user computer 102 obtains a character from a character display/control program and character data, the server computer 101 measures motions of the character and computes charges for use of the character display/control program and character data on the basis of the measurement result. Thus, after users have generated characters, charges for use of character display/control programs and character data are computed and collected according to the motions of the characters actually used by the users. Therefore the users can readily use the character provision service system. Also, the program providers and the character data providers can obtain charges for actual use of the programs and character data through the server computer 101.

Since the character display/control programs and character data are held in the server computer 101, the program providers and the character data providers are free from anxiety about unauthorized use of them.

As a result, provision of character data and

programs can be promoted.

<Third Embodiment>

A third embodiment of the present invention will be described with respect to a character formed by  
5 using a character display/control program and character data.

Fig. 21 shows an example of a character who announces news distributed through a network. If a user selects the "text mode" among the "conversation" items in the motion modes in the catalog information shown in Fig. 11, he or she is informed of news through display of the character with letters in a balloon.  
10

To form the corresponding character in a case where the "voice mode" is selected among the "conversation" items in the motion modes in the catalog information shown in Fig. 11, character data including data on images of a figure with basic mouth shapes corresponding to the vowels of the language in which news sentences are read and images of the figures  
15 corresponding to the opening/closing of the mouth for pronouncing consonants is required to shape the mouth of the character in synchronization with articulation in reading the sentences (referred to as "lip synchronization", hereinafter). A character  
20 display/control program for performing scheduling such as to change the character data in synchronization with the lengths of sounds based on voice data formed by a  
25



voice synthesis system, and phoneme data for producing synthesized sounds by the voice synthesis system are also required for the character.

In the above-described first embodiment, the  
5 character data, the character display/control program, the phoneme data and the voice synthesis system prepared in accordance with the third embodiment are read to the user computer 102 to form the character.

In the above-described second embodiment, the  
10 phoneme data and the voice synthesis system and the character display/control program are held on the server computer 101, and synthesized sounds and the character generated being a request from a user are edited into a sequence of video data to be sent to the  
15 user computer 102. The arrangement may alternatively be performed, in which while the voice synthesis system and the character display/control program are read to the user computer 102, the phoneme data and the  
20 character data are used by accessing the server computer 101 from the user computer 102.

In a case where the character provision service system is used in combination with a voice synthesis system, voice or sound providers which provides data for producing synthesized sounds may be included as  
25 selectable providers and a charge may be computed according to a combination of a selected sound provider, a character, etc. Fig. 12 shows an example

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of a window when a user selects such a combination. If  
"voice" is selected among "conversation" items, and if  
a character having a lip synchronization function is  
selected, a list of synthesized sound providers  
5 selectable with respect to the language to be used is  
displayed. Through this window, the user can make a  
selection while hearing sample synthesized sounds.

A user may be informed of news through display of  
text information and/or sign language motions made by a  
10 character as well as through voice. In such a case,  
the number of moved parts of the character and the  
amount of change in the motions vary with respect to  
different combinations of the information media, and  
charges are computed according to the contents of the  
15 combinations.

<Other Embodiments>

In the above-described first and second  
embodiments, charges for use of a character  
display/control program and character data are set  
20 according to motions made by a character generated by  
using the character display/control program and the  
character data. However, the arrangement may  
alternatively be performed, in which, for example,  
charges are set according to character motions based on  
25 character data only, while a character display/control  
program is sold at a fixed price.

In the above-described first and second

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embodiments, character display/control programs and character data are distributed to user computers 102 through network 104 typified by the Internet.

Alternatively, character display/control programs and character data may be recorded on a recording medium such as CD-ROM to be distributed to users and installed on user computer 102. In such a case, only licenses may be distributed through network 104.

In the above-described first and second embodiments, motions of a character are measured based on the amount of movement of the character, the number of moved parts, the amount of change in motion, and the motion period. If an interactive conversation with the character is made, motions of the character may also be measured based on the number of bytes of a sequence of input letters or the number of input letters.

In the above-described first and second embodiments, charges are computed on the basis of motions of a character. Therefore the arrangement may be such that points are set in advance on the basis of kinds of motions such as "weep", "smile", etc., as shown in Fig. 14, and charges are computed according to the sums of points accumulated with respect to motions actually made. For example, if the expression of emotion is stronger, the amount of change in motion is larger and a higher point is set correspondingly. That is, if a character tends to openly express emotions, a

higher point is set or the sum of points is increased, resulting in a higher charge. A user may purchase such points in advance from a character data provider or an agent in a prepayment system.

5 In the above-described first and second  
embodiments, data such as shown in Figs. 7, 8, 9, 19,  
and 20 is used as data stored in royalty data storage  
unit 208. However, data in any other format may be  
used if it is equivalent in logical meaning to that  
10 described above.

In the above-described first and second  
embodiments, data communication is performed by using  
network 104 such as the Internet. However, any other  
communication means capable of data communication may  
15 alternatively be used. For example, a private line may  
be used.

In the above-described first and second  
embodiments, a computer, a central processing unit  
(CPU), or a microprocessor unit (MPU) is used to  
20 execute a software program for realizing the functions  
in the first and second embodiments. Needless to say,  
the all or some of the functions may be realized by  
logical circuits.

In the above-described first and second  
25 embodiments, each of the server computer 101 and the  
user computer 102 may be a computer 2200 shown in Fig.  
22 capable of executing a software program for

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realizing the above-described functions.

The computer 2200 comprises, as shown in Fig. 22,  
a CPU 2201, a read-only memory (ROM) 2202, a random-  
access memory (RAM) 2203, a keyboard controller (KBC)  
5 2205 for controlling a keyboard (KB) 2209, a cathode  
ray tube (CRT) controller 2206 for controlling a CRT  
display 2210, a disk controller (DKC) 607 for  
controlling a hard disk (HD) 2211 and a floppy disk  
(FD) 2212, a network interface card (NIC) 2208, and a  
10 system bus 2204 connecting the above-described  
components so that communication can be performed  
therebetween.

The system bus 2204 is connected to the network  
104 shown in Fig. 1.

15 The CPU 2201 performs overall control of the  
components connected to the system bus 2204 by  
executing a software program stored in the ROM 2202 or  
HD 2211 or a software program supplied from the FD  
2212.

20 That is, the CPU 2201 executes the program in  
accordance with the processing sequence described above  
with respect to the first or second embodiment after  
reading out the program from the ROM 2202, the HD 2211  
or the FD 2212 to perform a control process for  
25 realizing the operation in the first or second  
embodiment.

The RAM 2203 functions as a main memory or a work

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area etc. for the CPU 2201.

The KBC 2205 controls instruction inputs from the KB 2209 and a pointing device (not shown) or the like.

The CRTC 2206 controls display on the CRT 2210.

5       The DKC 2207 controls access to the HD 2211 and the FD 2212 on which are stored a boot program, various application programs, edited files, user files, a network management program, the above-mentioned programs for processing in the first and second  
10       embodiments of the present invention, etc.

The NIC 2208 performs bi-directional data exchange with server computer 101 or user computer 102 on the network 104.

15       The present invention can be applied to a system constituted by a plurality of devices and to a system formed by one device.

Needless to say, the present invention can be achieved in such a manner that a system or an apparatus is provided with a storage medium on which a program  
20       code of software for realizing host and terminal functions in the first or second embodiment is stored, and a computer (CPU or MPU) in the system or apparatus reads out and executes the program code stored on the storage medium. In this case, the program code itself  
25       read out from the storage medium realizes the functions of each of the above-described embodiments and the storage medium storing the program code constitutes the

present invention. The storage medium used to store the above-described program code is, for example, a ROM, a floppy disk, a hard disk, an optical disc, a magneto-optical disc, a CD-ROM, a CD-R, a magnetic tape, or a nonvolatile memory card.

Needless to say, the present invention comprises not only reading out and executing the program code by a computer to realize the functions of the first or second embodiment but also performing part or the entire of actual processing by an operating system or the like running on a computer and realizing the functions of the first or second embodiment by the process performed by the operating system. Needless to say, the present invention comprises a process in which the above-described program code read out from the storage medium is written to a memory provided in a function expansion board inserted into a computer or a function expansion unit connected to the computer, and a CPU or the like provided on the function expansion board or the function expansion unit performs part or the entire of actual processing on the basis of instructions based on the program code, whereby the functions of the first or second embodiment are realized.

According to the present invention, as described above, a user can use various characters by freely selecting motions of the characters. For example, when

the user uses characters in a role-playing game, he or she can enjoy the game through characters skilled in acting by selecting such characters from various characters capable of expressing emotions in various ways and performing various kinds of physical actions.

Also, the user can use characters according his or her need by paying a fee according to motions made by the characters only for a necessary period of time and only by a necessary amount of movement. Character data providers can collect charges according to motions made by characters used by users.

Thus, the present invention has the advantage of promoting use of the character provision service system.